

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

✓ 1. (Currently Amended) A process for obtaining a fraction of a lactic raw material enriched in glycomacropeptide or caseinoglycomacropeptide ("GMP") comprising the steps of:

deionizing a lactic raw material for a time sufficient to obtain a substantially deionized lactic raw material having a pH of about 1 to 4.5 with the pH being adjusted, if necessary, to the recited range;

contacting the substantially deionized lactic raw material with an anionic resin having a hydrophobic matrix for a sufficient amount of time and at a sufficient temperature to adsorb remove GMP onto the anionic resin from the substantially deionized lactic raw material and to obtain a treated liquid material;

separating the resin from the treated liquid material; and

separating the adsorbed GMP enriched fraction from the resin.

F' 2. (Previously Amended) The process according to claim 1 wherein the lactic raw material is one of sweet whey obtained after separation of casein coagulated with rennet, a concentrate of sweet whey, a sweet whey or such a whey demineralized to by electrodialysis, ion exchange, reverse osmosis, electrodeionization or a combination of these procedures, a concentrate of sweet whey demineralized by electrodialysis, ion exchange, reverse osmosis, electrodeionization or a combination of these procedures, a concentrate of proteins of substantially lactose-free sweet whey obtained by ultrafiltration, followed by diafiltration (ultrafiltration with washing), mother liquors of the crystallization of lactose from sweet whey, a permeate of ultrafiltration of a sweet whey, the product of hydrolysis, by a protease, of a native casein obtained by acid precipitation of skimmed milk with an inorganic acid or by biological acidification, where appropriate with addition of calcium ions or alternatively of a micellar casein, obtained by microfiltration of a skimmed milk, the product of hydrolysis of a caseinate by a protease.

3. (Previously Amended) The process according to claim 1 wherein the lactic raw material is sweet whey having a solids content of about 10 to 23 percent by weight.

✓ 4. (Previously Amended) The process according to claim 1 wherein the lactic raw material is a liquid or a dispersion of solids in a liquid.

5. (Previously Cancelled)

6. (Previously Amended) A process for obtaining a fraction of lactic raw material enriched in glycomacropeptide or caseinoglycomacropeptide ("GMP") comprising the steps of:

deionizing a lactic raw material for a time sufficient to obtain a substantially deionized lactic raw material having a pH of about 1 to 4.5 with the pH being adjusted, if necessary, to the recited range;

contacting the substantially deionized lactic raw material with an anionic resin having a hydrophobic matrix for a sufficient amount of time and at a sufficient temperature to remove GMP from the substantially deionized lactic raw material and to obtain a treated liquid material, wherein the substantially deionized lactic raw material contacts the resin in a gently stirred reactor at a temperature of less than 50°C for one to ten hours to adsorb the GMP onto the resin;

separating the resin from the treated liquid material; and
separating the GMP enriched fraction from the resin.

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7. (Original) The process according to claim 6 wherein the reactor is at a temperature between 0°C and 15°C and the resin is basic and in macroporous or macrocross-linked gel form.

8. (Original) The process according to claim 1 wherein the substantially deionized lactic raw material contacts the resin until the treated liquid material attains a constant pH of between about 4.5 to 5.5.

9. (Currently Amended) A process for the extraction and removal of glycomacropeptide or caseinoglycomacropeptide ("GMP") from a lactic raw material comprising the steps of:

deionizing a lactic raw material for a time sufficient to obtain a substantially deionized lactic raw material having a pH of about 1 to 4.5 with the pH being adjusted, if necessary, to the recited range;

contacting the substantially deionized lactic raw material with an anionic resin having a hydrophobic matrix for a sufficient amount of time and at a sufficient temperature to

remove GMP from the substantially deionized lactic raw material by adsorbing the GMP onto the anionic resin ~~and~~ to obtain a treated liquid material;

separating the resin from the treated liquid material;

concentrating the treated liquid material by evaporation and drying; and

recovering GMP by desorbing ~~separating~~ it from the resin.

10. (Previously Amended) The process according to claim 9 wherein the step of separating the resin from the treated liquid material is accomplished by filtration or centrifugation and the treated liquid material is dried by spray drying.

11. (Previously Amended) The process according to claim 1 wherein the anionic resin and the deionized lactic raw material are present in a ratio by volume of between 1:1 and 1:30.

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12. (Currently Amended) The process according to claim 1, wherein the step of separating the adsorbed GMP enriched fraction from the resin is accomplished by:

washing the resin with demineralized water to obtain a wash;

desorbing the GMP from the resin by washing the resin with an acidic, basic or saline aqueous solution rinse to obtain an eluate;

rinsing ~~washing~~ the resin with demineralized water to obtain a rinse;

combining the eluate, the rinse and the wash ~~washings~~;

demineralizing the combined eluate, rinse and wash ~~washings~~ by ultrafiltration or nanofiltration on a membrane with a mean cut-off region of about 3000 daltons to obtain a retentate and filtrate; and

recovering the GMP enriched fraction as the retentate; and

optionally freeze-drying the recovered retentate.

13. (Previously Amended) The process according to claim 12 wherein the basic aqueous solution comprises NaOH, KOH or Ca(OH)₂, in a concentration of less than 8%.

14. (Withdrawn) The process of claim 1 wherein the treated liquid material has an amino acid profile that is reduced in threonine and enriched in aromatic amino acids and tryptophan relative to the lactic raw material.

15. (Withdrawn) The process of claim 14 wherein, relative to the lactic raw material, the threonine content is reduced by about 15 to 40%, and the aromatic amino acids and tryptophan are increased by about 20 to 60%.

16. (Withdrawn) The process of claim 14, wherein the treated liquid material is included in an infant or dietetic product as protein raw material.

17. (Withdrawn) The process of claim 9 wherein the treated liquid material is included in an infant or dietetic product as protein raw material.

18. (Withdrawn) The process of claim 10 wherein the dried treated liquid material is included in an infant or dietetic product as protein raw material.

19. (Withdrawn) The process of claim 1 wherein the GMP enriched fraction obtained therefrom includes less than 1% by weight of fat, less than 0.2% by weight of lactose, and less than 3% by weight of true whey products and is included with a carrier in a composition.

20. (Cancelled)

21. (Withdrawn) The process of claim 19 wherein the composition is a food composition containing the GMP as an emulsifying, gelling or foaming agent.

22. (Withdrawn) The process of claim 19 wherein the composition is a dental composition containing the GMP as an agent against plaque and caries.

23. (Withdrawn) The process according to claim 12, further comprising the step of freeze-drying the retentate.

24. (Currently Amended) A process for obtaining a fraction of a lactic raw material enriched in glycomacropeptide or caseinoglycomacropeptide ("GMP") comprising the steps of:

deionizing a lactic raw material for a time sufficient to obtain a substantially deionized lactic raw material having a pH of about 1 to 4.5 with the pH being adjusted, if necessary, to the recited range;

treating the resin with an alkaline material;

contacting the substantially deionized lactic raw material with an anionic resin having a hydrophobic matrix for a sufficient amount of time and at a sufficient temperature to ~~adsorb remove~~ GMP onto the anionic resin from the substantially deionized lactic raw material and to obtain a treated liquid material;

separating the resin from the treated liquid material; and

separating the adsorbed GMP enriched fraction from the resin.

25. (Currently Amended) A process for preparing a composition that contains glycomacropeptide or caseinoglycomacropeptide ("GMP") in combination with a pharmaceutically acceptable carrier, said process comprising the steps of:

(a) deionizing a lactic raw material for a time sufficient to obtain a substantially deionized lactic raw material having a pH of about 1 to 4.5 with the pH being adjusted, if necessary, to the recited range;

(b) contacting the substantially deionized lactic raw material with an anionic resin having a hydrophobic matrix for a sufficient amount of time and at a sufficient temperature to ~~remove~~ adsorb GMP onto the anionic resin from the substantially deionized lactic raw material and to obtain a treated liquid material;

(c) separating the resin from the treated liquid material;

(d) separating the adsorbed GMP enriched fraction from the resin; and

(e) combining the GMP of step (d) with a pharmaceutically acceptable carrier.

26. (Currently Amended) The process of claim 25, wherein the composition is a an antithrombotic pharmaceutical composition containing GMP as an antithrombotic ~~agents~~ agent.